

## REMARKS

Reconsideration of this Application, and the rejection of claims 1-31, are respectfully requested. Applicants have attempted to address every objection and grounds for rejection in the Office Action dated September 9, 2004 and believe the Application is now in condition for allowance.

Claims 1-7 and 12-15 stand rejected under 35 U.S.C. §102(b) as being anticipated by Moore et al. (U.S. Patent No. 6,369,775). Claims 7-11, which ultimately depend from claim 1, also stand rejected under 35 U.S.C. §103(a) as being unpatentable over Moore et al. Applicants traverse because Moore et al. fail to disclose or suggest a multiple bandwidth antenna assembly that includes, *inter alia*, “a core plug having a first axial piece and a second axial piece that abut one another...”

Claim 1 recites a multiple bandwidth antenna that includes “a core plug having a first axial piece and a second axial piece that abut one another.” As is discussed throughout the specification, this particular configuration for the core piece is important for several reasons. Specifically, by having at least two core plug pieces, the core plug may be assembled within the helical radiator without distorting the helical radiator, and the core plug may be assembled within a *pre-formed* helical radiator rather than having the helical radiator wound or formed around the core plug.

First, as discussed for example at page 4, lines 9-13, by having two distinct core plug pieces, “each core plug piece may be separately assembled within a corresponding

portion of the multiple pitch helical radiator without encountering materially non-corresponding helical portions...” Thus, the recited invention reduces the problem discussed at page 5, lines 23-25, wherein “resistance encountered by the [multiple pitch] helical radiator as it is screwed onto a conventional core plug materially deforms the helical radiator.” Second, as discussed at page 4, lines 29-32, the multiple pitch helical radiator may be pre-formed: “[t]hus, because the core plug is severable into a plurality of separate pieces, the multiple pitch helical radiator may advantageously be pre-formed to have a general predetermined pitch or plurality of pitches, into which the respective core plug pieces are then assembled.”

Moore et al. disclose an antenna assembly 10 that includes a helical radiator 12 wound around a nonconductive core plug 14 that includes only a single piece. The Examiner erroneously indicates that Moore includes the recited feature, and broadly references column 2, line 53 of Moore et al. in support of the contention. However, not only does column 2, line 53 fail to support the Examiner’s assertion, as illustrated in FIGs. 1B, 1C and 2, the core plug 14 is clearly unitary. While Moore et al. provide that the core plug 14 may include more than one pitch section (e.g., three pitch sections 16, 18, 20 as illustrated in FIG. 1), Moore et al. provide that the wire is formed around those pitch sections.

Moreover, with respect to the §103(a) rejection of claims 7-11, modifying Moore et al. to include first and second axial pieces is not obvious insofar as Moore et al. adopts a different approach to antenna formation that does not consider a pre-formed helical

radiator with multiple pitches. Moore et al. detail that the helical radiator is “wound around a nonconductive core plug to provide a desired pitch or pitches in the helical radiator.” (Column 2, lines 52-54). Thus, it is not a goal of Moore et al. to have a pre-formed helical radiator having a general predetermined pitch or plurality of pitches, as disclosed in the instant specification. Instead, Moore et al., forms the helical radiator by winding it around the core.

Separately, claims 7 and 8 each respectively recite features specific to a core plug having first and second axial pieces, a feature Moore et al. lack. Specifically, claim 7 recites that, “medial ends of each of said first and second axial pieces are configured to be in abutment with one another,” and claim 8 recites that, “medial ends of each of said first axial piece and said second axial piece are held in engagement by adhesion.”

As discussed above, Moore et al. fail to disclose or suggest a core plug having first and second axial pieces, but rather provides a unitary core plug around which a helical radiator is wound. Therefore, not only are the features recited in claims 7 and 8 *not* obvious in view of the teachings of Moore et al., but those features are counterintuitive to Moore et al. There are no pieces in Moore et al. to configure “to be in abutment with one another,” as recited in claim 7, nor are there pieces that “are held in engagement by adhesion.”

Nor does the Examiner suggest such a modification is obvious. Instead, the Examiner fails to address the basis for the obviousness rejection of claim 7, and with respect to claim 8, inexplicably writes that it would have been obvious “to use the adhesive to bond

the *helical radiators* together.” (emphasis added). Claim 8 makes no such recitation, but instead recites that the axial pieces of the core plug “are held in engagement by adhesion.” Also, the adhesion bonding of a helical radiator does not make sense, and would likely provide a poorly performing radiator.

Accordingly, Applicants request withdrawal of both the §102(b) and §103(a) rejections of claims 1-7, as well as the §102(b) rejection of claims 12-15.

The basis for the rejection of the remainder of the claims (claims 16-31) is unclear. The Examiner improperly rejected claims 16-23 as being “similar in scope to claims 1-15,” and that “they are rejected for the same reason.” See, MPEP §707.07(d). Similarly, the Examiner improperly rejected claims 24-31 as being “similar in scope to claims 1-15, and that “they are rejected for the same reason.” See, MPEP §707.07(d). Nonetheless, Applicants will attempt to address the rejections of claims 16-23 and 24-31 as best as Applicants are able to understand the rejections.

With respect to the presumed §102(b) and §103(a) rejection of claims 16-23, Applicants traverse because Moore et al. fail to disclose or suggest a multiple bandwidth antenna assembly that includes, *inter alia*, “core means having at least two pieces...”

As previously discussed in traversing the §102(b) and §103(a) rejection of claim 1, Moore et al. disclose an antenna assembly 10 that includes a helical radiator 12 wound around a nonconductive core plug 14 that includes only a single piece. Obviously, therefore, Moore et al. does not include a core plug that includes “at least two pieces.” Also,

the method of coupling the helical radiator to the core plug appears to preclude multiple core plug pieces.

With respect to the presumed §102(b) and §103(a) rejection of claims 24-31, Applicants traverse because Moore et al. fail to disclose or suggest a method for assembling a multiple bandwidth antenna that includes “forming a first core plug piece configured to engage a first portion of said helical radiator” and “forming a second core plug piece configured to engage a second portion of said helical radiator,” as recited in claim 24. Nor does Moore et al. disclose or suggest “preforming a helical radiator having at least one predetermined pitch,” as recited in claim 30, or an antenna assembly that includes “core means having at least two pieces,” as recited in claim 31.

First, with respect to claims 24 and 31, Applicants traverse for the reasons asserted above in the §102(b) and §103(a) rejections of claim 1 and 16. Claims 24 and 31 respectively recite a method for forming an antenna and an antenna that include at least two core plug pieces. As previously discussed, Moore et al. disclose an antenna assembly 10 that includes a helical radiator 12 wound around a nonconductive core plug 14 that includes only a single piece.


Second, Applicants separately traverse claim 30 insofar as there is no disclosure or suggestion that the method for assembling an antenna includes ““preforming a helical radiator having at least one predetermined pitch.” In fact, Moore et al. disclose that the helical radiator is “wound around a nonconductive core plug to provide a desired pitch or

pitches in the helical radiator.” (Column 2, lines 52-54). This suggests that not only is the helical radiator *not* preformed, but that it is specifically formed around the helical pitch of the unitary core plug. Accordingly, Applicants request withdrawal of the §102(b) and §103(a) rejection of claim 30.

For the foregoing reasons, Applicants submit that this Application is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite the prosecution.

Respectfully submitted,

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